The Variational Mean Spherical Scaling Approximation: Applications to Electrolytes and Polyelectrolytes

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The recently intoduced Variational Mean Spherical Scaling Approximation (VMSSA) is discussed. This new approx-imation satisfies the low and high concentration asymptotic limits for *highly charged* electrolytes [1].

Applications to simple electrolytes (BIMSA model), arbitrary flexible polyelectrolytes and water are discussed. It is shown that the excess thermodynamic functions, the internal energy, E, and the entropy S have the same simple form for all these cases, and are functions of a single screening parameter matrix Γ, which however depends on all Coulomb and other soft interactions.

[1] E. Velazquez and L. Blum, *J. Chem. Phys*. 110, 10931 (1999).